

NMCP COVID-19 Literature Report #42: Friday, 02 October 2020

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Purpose: These now weekly reports, published on Fridays, are curated collections of current research, evidence reviews, and news regarding the COVID-19 pandemic. Please feel free to reach out with questions, suggestions for future topics, or any other concerns.

All reports are available online at <https://nmcp.libguides.com/covidreport>. Access is private; you will need to use the direct link or bookmark the URL, along with the case-sensitive password "NMCPfinest".

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily.

Statistics

Global today: 34,374,469 confirmed cases and 1,024,426 deaths in 188 countries/regions

7 days ago: 32,308,999 confirmed cases and 984,278 deaths in 188 countries/regions

14 days ago: 30,217,420 confirmed cases and 946,847 deaths in 188 countries/regions

United States*

top 5 states by cases (Virginia is ranked 15th)

	TOTAL US	CA	TX	FL	NY	GA
Confirmed Cases	7,288,166	822,950	776,808	711,804	460,031	319,359
Tests	104,845,628	14,771,851	6,282,329	5,325,835	10,856,531	2,954,392
Deaths	207,867	15,995	16,130	14,444	33,159	7,063

*see census.gov for current US Population data; NA: not all data available

[JHU CSSE](https://covid19.jhu.edu/) as of 1200 EDT 02 October 2020

	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	149,687	4,375	1,859	2,785	4,900	2,604	1,989	7,000
Hospitalized	11,140	420	69	107	368	289	125	386
Deaths	3,250	72	27	46	78	59	74	93

[VA DOH](https://www.vahq.org/) as of 1200 EDT 02 October 2020

COVID-19 Disease Severity Defined

Question: "How are the different levels of severity – mild, moderate, severe, etc. – for COVID-19 defined by the CDC or others?"

Some studies, especially those early on in the pandemic, define cases and disease severity on their own. There is also some debate on clinical versus laboratory definitions, which complicates testing guidance as well.

The WHO has detailed clinical and laboratory parameters that help define disease severity ([WHO](#)). Table 1 details symptoms and clinical presentation, and Table 2 details disease severity:

Table 2. COVID-19 disease severity

Mild disease		Symptomatic patients (Table 1) meeting the case definition for COVID-19 without evidence of viral pneumonia or hypoxia. See the WHO website for most up-to-date case definitions (1).
Moderate disease	Pneumonia	Adolescent or adult with clinical signs of pneumonia (fever, cough, dyspnoea, fast breathing) but no signs of severe pneumonia, including SpO ₂ ≥ 90% on room air (54). Child with clinical signs of non-severe pneumonia (cough or difficulty breathing + fast breathing and/or chest indrawing) and no signs of severe pneumonia. Fast breathing (in breaths/min): < 2 months: ≥ 60; 2–11 months: ≥ 50; 1–5 years: ≥ 40 (55). While the diagnosis can be made on clinical grounds; chest imaging (radiograph, CT scan, ultrasound) may assist in diagnosis and identify or exclude pulmonary complications.
Severe disease	Severe pneumonia	Adolescent or adult with clinical signs of pneumonia (fever, cough, dyspnoea, fast breathing) plus one of the following: respiratory rate > 30 breaths/min; severe respiratory distress; or SpO ₂ < 90% on room air (54). Child with clinical signs of pneumonia (cough or difficulty in breathing) + at least one of the following: <ul style="list-style-type: none">• Central cyanosis or SpO₂ < 90%; severe respiratory distress (e.g. fast breathing, grunting, very severe chest indrawing); general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions (55,56).• Fast breathing (in breaths/min): < 2 months: ≥ 60; 2–11 months: ≥ 50; 1–5 years: ≥ 40 (55). While the diagnosis can be made on clinical grounds; chest imaging (radiograph, CT scan, ultrasound) may assist in diagnosis and identify or exclude pulmonary complications.

Selected Literature: Peer-Reviewed Journals

Date given is the date published or posted online; often these papers are ahead of print.

01 October 2020

JAMA Netw Open: [Symptom Characterization and Outcomes of Sailors in Isolation After a COVID-19 Outbreak on a US Aircraft Carrier](#)

A case series of CVN71 by Army researchers: " This case series included all USS TR sailors with a diagnosis of SARS-CoV-2 infection and placed in isolation at Naval Base Guam between March 31 and April 15, 2020. Polymerase chain reaction tests for COVID-19 (BioFire Respiratory Panel With SARS-CoV-2, bioMérieux) were performed through nasal swabs for all sailors. Sailors with a diagnosis of COVID-19 were isolated. Those who tested negative for SARS-CoV-2 and those who were asymptomatic were quarantined in single-room hotel accommodations....

The frequency of symptoms observed in this study is consistent with that in previous reports⁵ of COVID-19 among nonhospitalized patients. The person-days proportion analysis confirms that olfactory and gustatory symptoms are commonly seen in minimally symptomatic COVID-19. One hundred forty-six sailors (19.8%) remained asymptomatic for the duration of the study period, and this is consistent with the symptom survey results from the US Navy and Centers for Disease Control and Prevention report (18.5%), which also highlights the concern for enhanced asymptomatic SARS-CoV-2 transmission."

See also this [invited commentary](#).

PLoS Med: [Seroprevalence of SARS-CoV-2 antibodies in people with an acute loss in their sense of smell and/or taste in a community-based population in London, UK: An observational cohort study](#)

"Author summary:

- Coronavirus disease 2019 (COVID-19), an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus, was declared a pandemic in March 2020.
- COVID-19 can cause loss or reduced ability to smell (anosmia) or taste, without cough or fever, but few countries recommend self-isolation and testing on the basis of smell or taste changes alone.
- This study aimed to find out the proportion of people who have developed SARS-CoV-2 antibodies in a community-based population with a newly developed loss in their sense of smell and/or taste in London, UK.

- Text messages were sent out to people registered with a number of primary care centers in London inviting people with a new loss in their sense of smell and/or taste to participate.
- Recruited participants completed online questionnaires regarding demographics, their loss of smell and/or taste, and other COVID-19 symptoms, before they had a telemedicine consultation with a healthcare professional who confirmed the history of their symptoms and supervised a test to find out if they had SARS-CoV-2 antibodies.
- A total of 78% of 567 people with smell and/or taste loss had SARS-CoV-2 antibodies; of these, 40% had neither cough nor fever, and participants with loss of smell were 3 times more to have SARS-CoV-2 antibodies, compared with those with loss of taste.
- Loss of smell is a highly specific symptom of COVID-19.
- COVID-19 can present with loss of smell and/or taste without cough or fever.
- Loss of smell should be taken into consideration in case isolation, testing, and treatment strategies for COVID-19."

30 September 2020

BMJ: [In-hospital cardiac arrest in critically ill patients with covid-19: multicenter cohort study](#)

This was a multicenter cohort study in intensive care units at 68 geographically diverse hospitals across the United States.

"Among 5019 critically ill patients with covid-19, 14.0% (701/5019) had in-hospital cardiac arrest, 57.1% (400/701) of whom received cardiopulmonary resuscitation. Patients who had in-hospital cardiac arrest were older (mean age 63 (standard deviation 14) v 60 (15) years), had more comorbidities, and were more likely to be admitted to a hospital with a smaller number of intensive care unit beds compared with those who did not have in-hospital cardiac arrest. Patients who received cardiopulmonary resuscitation were younger than those who did not (mean age 61 (standard deviation 14) v 67 (14) years). The most common rhythms at the time of cardiopulmonary resuscitation were pulseless electrical activity (49.8%, 199/400) and asystole (23.8%, 95/400). 48 of the 400 patients (12.0%) who received cardiopulmonary resuscitation survived to hospital discharge, and only 7.0% (28/400) survived to hospital discharge with normal or mildly impaired neurological status. Survival to hospital discharge differed by age, with 21.2% (11/52) of patients younger than 45 years surviving compared with 2.9% (1/34) of those aged 80 or older.

Cardiac arrest is common in critically ill patients with covid-19 and is associated with poor survival, particularly among older patients."

JAMA Intern Med: [Efficacy and Safety of Hydroxychloroquine vs Placebo for Pre-exposure SARS-CoV-2 Prophylaxis Among Health Care Workers: A Randomized Clinical Trial](#)

"Does a regimen of hydroxychloroquine, 600 mg, per day, reduce the transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as a pre-exposure prophylaxis strategy when taken by hospital-based health care workers?"

In this double-blind, placebo-controlled randomized clinical trial that included 132 participants and was terminated early, there was not a significant difference in reverse-transcriptase polymerase chain reaction–confirmed SARS-CoV-2 incidence between hydroxychloroquine and placebo cohorts.

Among hospital-based health care workers, daily hydroxychloroquine did not prevent SARS-CoV-2 infection, although the trial was terminated early and may have been underpowered to detect a clinically important difference."

JAMA Netw Open: [Association of a Prior Psychiatric Diagnosis With Mortality Among Hospitalized Patients With Coronavirus Disease 2019 \(COVID-19\) Infection](#)

"This is the first study, to our knowledge, that characterizes the association of psychiatric diagnosis with COVID-19–related mortality. The primary finding is that patients with a prior psychiatric diagnosis while hospitalized for COVID-19 had a higher mortality rate compared those without a psychiatric condition. The finding is similar to previous findings: individuals with concurrent psychiatric and medical diagnoses had poorer outcomes and higher mortality.

It is unclear why psychiatric illness predisposes to COVID-19–related mortality. Psychiatric symptoms may arise as a marker of systemic pathophysiologic processes, such as inflammation, that may, in turn, predispose to mortality. Similarly, psychiatric disorders may augment systemic inflammation and compromise the function of the immune system, while psychotropic medications may also be associated with to mortality risk."

NEJM: [Rethinking Covid-19 Test Sensitivity — A Strategy for Containment](#)

"Currently, there is no FDA pathway for tests to be evaluated and approved for use in a regimen rather than as a single test or for their public health potential to reduce community transmission. The regulatory lens remains focused exclusively on clinical diagnostic tests, but new metrics could be applied to assess tests in light of an epidemiologic framework if their stated purpose is to reduce community prevalence of the virus....

To defeat Covid-19, we believe that the FDA, the CDC, the National Institutes of Health, and others must encourage structured evaluations of tests in the context of planned testing regimens to identify those that will provide the best Covid filters. Frequent use of cheap, simple, rapid tests will accomplish that aim, even if their analytic sensitivities are vastly inferior to those of benchmark tests. Such a regimen can help us stop Covid in its tracks."

29 September 2020

JAMA Netw Open: [Clinical Screening for COVID-19 in Asymptomatic Patients With Cancer](#)

"The findings of this quality improvement study have several important implications. While it was clearly prudent to postpone elective procedures and delay care when possible, it is also clear that the risk of COVID-19 is likely to persist for some time. Cancer care will need to continue, given that further delays will lead to significantly worse outcomes for individual patients and other health care crises. We observed that the rate of past infection in our clinically screened asymptomatic cancer population was exceedingly low, at approximately 4%, and the rate of SARS-CoV-2 PCR positivity was less than 1%. This is in contrast to the COVID-19 prevalence in New York City at that time, which was close to 20%. While we do not know the reason for this low prevalence rate, it is likely that these highly motivated patients abided to social distancing recommendations, masking, and hygiene. We found that patients whose test results were negative for COVID-19 could receive chemotherapy without increasing the risk of contracting the disease, further bolstering the argument that clinicians may resume anticancer therapy in asymptomatic patients."

JAMA Netw Open: [Changes in Adult Alcohol Use and Consequences During the COVID-19 Pandemic in the US](#)

"In this survey study, data were collected using the RAND Corporation American Life Panel (ALP), a nationally representative, probability-sampled panel of 6000 participants age 18 years or more who speak English or Spanish; data are weighted to match a range of national demographic characteristics....

Comparisons before and during the COVID-19 pandemic were made on number of days of any alcohol use and heavy drinking (defined as 5 or more drinks for men and 4 or more drinks for women within a couple of hours), and average number of drinks consumed over the past 30 days....

Frequency of alcohol consumption increased (1) overall.... On average, alcohol was consumed 1 day more per month by 3 of 4 adults. For women, there was also a significant increase of 0.18 days of heavy drinking (95% CI, 0.04-0.32 days), from a 2019 baseline of 0.44 days, which represents an increase of 41% over baseline. This equates to an increase of 1 day for 1 in 5 women."

MMWR: [Multiple COVID-19 Clusters on a University Campus — North Carolina, August 2020](#)

"Before August 2020, minimal data were available about outbreaks and disease transmission in institutes of higher education within the United States.

A North Carolina university experienced a rapid increase in COVID-19 cases and clusters within 2 weeks of opening the campus to students. Student gatherings and congregate

living settings, both on and off campus, likely contributed to the rapid spread of COVID-19 in this setting.

Enhanced measures are needed to reduce transmission at institutes of higher education and could include reducing on-campus housing density, ensuring adherence to masking and other mitigation strategies, increasing testing for SARS-CoV-2, and discouraging student gatherings."

MMWR: [Recent Increase in COVID-19 Cases Reported Among Adults Aged 18–22 Years — United States, May 31–September 5, 2020](#)

"Young adults with COVID-19 can spread infection to their contacts and communities.

During August 2–September 5, 2020, weekly COVID-19 cases among persons aged 18–22 years increased 55% nationally. Increases were greatest in the Northeast (144%) and Midwest (123%). Increases in cases were not solely attributable to increased testing.

Young adults, including those enrolled in colleges and universities, should take precautions, including mask wearing, social distancing, and hand hygiene, and follow local, state, and federal guidance for minimizing the spread of COVID-19. Institutions of higher education should take action to promote healthy environments."

NEJM: [Safety and Immunogenicity of SARS-CoV-2 mRNA-1273 Vaccine in Older Adults](#)

"We conducted a phase 1, dose-escalation, open-label trial of a messenger RNA vaccine, mRNA-1273 [ed: Moderna vaccine], which encodes the stabilized prefusion SARS-CoV-2 spike protein (S-2P) in healthy adults. The trial was expanded to include 40 older adults, who were stratified according to age (56 to 70 years or ≥71 years). All the participants were assigned sequentially to receive two doses of either 25 µg or 100 µg of vaccine administered 28 days apart.

Solicited adverse events were predominantly mild or moderate in severity and most frequently included fatigue, chills, headache, myalgia, and pain at the injection site. Such adverse events were dose-dependent and were more common after the second immunization. Binding-antibody responses increased rapidly after the first immunization. By day 57, among the participants who received the 25-µg dose, the anti-S-2P geometric mean titer (GMT) was 323,945 among those between the ages of 56 and 70 years and 1,128,391 among those who were 71 years of age or older; among the participants who received the 100-µg dose, the GMT in the two age subgroups was 1,183,066 and 3,638,522, respectively. After the second immunization, serum neutralizing activity was detected in all the participants by multiple methods. Binding- and neutralizing-antibody responses appeared to be similar to those previously reported among vaccine recipients between the ages of 18 and 55 years and were above the median of a panel of controls who had donated convalescent serum. The vaccine elicited a strong CD4 cytokine response involving type 1 helper T cells.

In this small study involving older adults, adverse events associated with the mRNA-1273 vaccine were mainly mild or moderate. The 100-µg dose induced higher binding- and neutralizing-antibody titers than the 25-µg dose, which supports the use of the 100-µg dose in a phase 3 vaccine trial."

Pediatrics: [National Trends of Cases of COVID-19 in Children Based on US State Health Department Data](#)

"We describe pediatric COVID-19 infection in the US: number of cases and trends by geographic region, proportion of confirmed cases that are children, hospitalization rate, mortality rate. Data are drawn from publicly available COVID-19 information posted on 49 state (NY state does not provide cases by age), 2 urban (NYC and DC) and 2 territory (Puerto Rico, Guam) health department web sites. Geographic region is based on the Census categorization: Northeast, Midwest, South, West.

Information was collected weekly on Thursdays from 4/16/2020-9/10/2020 and pooled to provide national and regional information.

As of 9/10, there were 549,432 cumulative child COVID-19 US cases, a rate of 729 cases per 100,000 children. There has been substantial variation in case growth by region: in April, a preponderance of cases was in the Northeast (Figure 1). In June, cases surged in the South and West, followed by mid-July increases in the Midwest....

Data compiled from state health departments confirm that children can contract COVID-19, although severe disease appears to be uncommon."

28 September 2020

Emerg Infect Dis: [Coronavirus disease model to inform transmission reducing measures and health system preparedness, Australia](#)

"The ability of health systems to cope with coronavirus disease (COVID-19) cases is of major concern. In preparation, we used clinical pathway models to estimate healthcare requirements for COVID-19 patients in the context of broader public health measures in Australia. An age- and risk-stratified transmission model of COVID-19 demonstrated that an unmitigated epidemic would dramatically exceed the capacity of the health system of Australia over a prolonged period. Case isolation and contact quarantine alone are insufficient to constrain healthcare needs within feasible levels of expansion of health sector capacity. Overlaid social restrictions must be applied over the course of the epidemic to ensure systems do not become overwhelmed and essential health sector functions, including care of COVID-19 patients, can be maintained. Attention to the full pathway of clinical care is needed, along with ongoing strengthening of capacity."

JAMA Intern Med: [Clinical Outcomes of In-Hospital Cardiac Arrest in COVID-19](#)

"There are limited data on the characteristics and outcomes of cardiac arrest in patients hospitalized with COVID-19 in the US. In our study of 54 patients with COVID-19, there was a 100% mortality rate following CPR. The initial rhythm was nonshockable for 52 patients (96.3%), with pulseless electrical activity being the most common (44 [81.5%]). Despite 29 patients (53.7%) achieving ROSC [return of spontaneous circulation], none survived to discharge."

MMWR: [COVID-19 Trends Among School-Aged Children — United States, March 1–September 19, 2020](#)

"Children aged <10 years can transmit SARS-CoV-2 in school settings, but less is known about COVID-19 incidence, characteristics, and health outcomes among school-aged children (aged 5–17 years) with COVID-19.

Since March, 277,285 COVID-19 cases in children have been reported. COVID-19 incidence among adolescents aged 12–17 years was approximately twice that in children aged 5–11 years. Underlying conditions were more common among school-aged children with severe outcomes related to COVID-19. Weekly incidence, SARS-CoV-2 test volume, and percentage of tests positive among school-aged children varied over time and by region of the United States.

It is important for schools and communities to monitor multiple indicators of COVID-19 among school-aged children and layer prevention strategies to reduce COVID-19 disease risk for students, teachers, school staff, and families. These results can provide a baseline for monitoring trends and evaluating mitigation strategies."

25 September 2020

Ann Intern Med: [Convalescent Plasma for the Treatment of COVID-19: Perspectives of the National Institutes of Health COVID-19 Treatment Guidelines Panel](#)

"As members of the National Institutes of Health COVID-19 Treatment Guidelines Panel (the Panel), we are charged with providing guidance for U.S. clinicians on the treatment of COVID-19 by reviewing current scientific evidence and providing real-time recommendations based on the strength and quality of the data....

Despite clearly meeting the "may be effective" criterion for EUA issuance, the analyses of the EAP data are not sufficient to establish the efficacy or safety of convalescent plasma because of the lack of an untreated control group....

Taking everything into account, the Panel has determined that currently the data are insufficient to recommend for or against convalescent plasma for treating COVID-19.

Prospective, well-controlled, and adequately powered RCTs are needed to determine whether convalescent plasma and other passive immunotherapies are effective and safe for COVID-19 treatment."

JAMA Netw Open: [Racial Disparities in Incidence and Outcomes Among Patients With COVID-19](#)

"Is there an association between race and coronavirus disease 2019 (COVID-19) after controlling for age, sex, socioeconomic status, and comorbidities?

In this cross-sectional study of 2595 patients, positive COVID-19 tests were associated with Black race, male sex, and age 60 years or older. Black race and poverty were associated with hospitalization, but only poverty was associated with intensive care unit admission.

The results of this study indicate that in the first weeks of the COVID-19 pandemic in Milwaukee, Wisconsin, Black race was associated with a positive COVID-19 test and the subsequent need for hospitalization, but only poverty was associated with intensive care unit admission."

JAMA Netw Open: [Association of Race and Ethnicity With Comorbidities and Survival Among Patients With COVID-19 at an Urban Medical Center in New York](#)

"Does the presentation of comorbidities in patients with coronavirus disease 2019 (COVID-19) differ by race/ethnicity, and is there a difference in case fatality rates among ethnic and racial groups when controlling for key risk factors?

In a cohort study of 5902 patients with positive COVID-19 diagnosis treated at a single academic medical center in New York, non-Hispanic Black and Hispanic patients had a higher proportion of more than 2 medical comorbidities and were more likely to test positive for COVID-19 compared with their non-Hispanic White counterparts. However, their survival outcomes were at least as good as those of their non-Hispanic White counterparts when controlling for age, sex, and comorbidities.

In this study, non-Hispanic Black and Hispanic patients experienced similar outcomes as their non-Hispanic White counterparts after COVID-19 infection; this is critical to further understanding the observed population differences in mortality by race/ethnicity reported elsewhere."

Lancet: [Prevalence of SARS-CoV-2 antibodies in a large nationwide sample of patients on dialysis in the USA: a cross-sectional study](#)

"Measuring the seroprevalence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) antibodies provides a comprehensive assessment of its community spread. Community seroprevalence surveys require considerable infrastructure and expense, and face implementation challenges during the COVID-19 pandemic due to restricted outreach in the worst-affected communities. Of the two largest seroprevalence surveys in the USA, one was limited only to New York state (n=15 101) and used convenience sampling at

grocery stores. A second survey used remainder plasma from people visiting commercial laboratories in six cities (n=11 933), but lacked details on race and ethnicity and other community-level risk factors.

We tested the remainder plasma of 28 503 patients receiving dialysis throughout the USA, using a chemiluminescence assay with high sensitivity and specificity. To our knowledge, we provide the first nationally representative estimate of SARS-CoV-2 seroprevalence in the US dialysis and US adult population, and estimates for differences in seroprevalence by neighbourhood race and ethnicity, poverty, population density, and mobility restriction. We also evaluate which of the existing measures of COVID-19 incidence most closely correlate with seroprevalence. Most importantly, we show that as patients receiving dialysis have monthly blood draws, without fail and without bias, and are a population with increased representation of racial and ethnic minorities, repeated cross-sectional analyses of seroprevalence within this sentinel population can be implemented as a practical and unbiased surveillance strategy in the USA.

Similar to data from other highly affected countries and regions (eg, Spain and Wuhan, China), despite the intense strain on resources and unprecedented excess mortality being experienced in the USA during the COVID-19 pandemic, fewer than 10% of US adults had formed antibodies to SARS-CoV-2 as of July, 2020. There was significant regional variation from less than 5% prevalence in the west to more than 25% in the northeast. Public health efforts to curb the spread of the virus need to continue, with focus on some of the highest-risk communities that we identified, such as majority Black and Hispanic neighbourhoods, poorer neighbourhoods, and densely populated metropolitan areas. A surveillance strategy relying on monthly testing of remainder plasma of patients receiving dialysis can produce unbiased estimates of SARS-CoV-2 spread inclusive of hard-to-reach, disadvantaged populations in the USA. Such surveillance can inform disease trends, resource allocation, and effectiveness of community interventions during the COVID-19 pandemic."

Lancet: [Extracorporeal membrane oxygenation support in COVID-19: an international cohort study of the Extracorporeal Life Support Organization registry](#)

"We used data from the Extracorporeal Life Support Organization (ELSO) Registry to characterise the epidemiology, hospital course, and outcomes of patients aged 16 years or older with confirmed COVID-19 who had ECMO support initiated between Jan 16 and May 1, 2020, at 213 hospitals in 36 countries. The primary outcome was in-hospital death in a time-to-event analysis assessed at 90 days after ECMO initiation. We applied a multivariable Cox model to examine whether patient and hospital factors were associated with in-hospital mortality.

Data for 1035 patients with COVID-19 who received ECMO support were included in this study. Of these, 67 (6%) remained hospitalised, 311 (30%) were discharged home or to an acute rehabilitation centre, 101 (10%) were discharged to a long-term acute care centre or

unspecified location, 176 (17%) were discharged to another hospital, and 380 (37%) died. The estimated cumulative incidence of in-hospital mortality 90 days after the initiation of ECMO was 37.4% (95% CI 34.4–40.4). Mortality was 39% (380 of 968) in patients with a final disposition of death or hospital discharge. The use of ECMO for circulatory support was independently associated with higher in-hospital mortality (hazard ratio 1.89, 95% CI 1.20–2.97). In the subset of patients with COVID-19 receiving respiratory (venovenous) ECMO and characterised as having acute respiratory distress syndrome, the estimated cumulative incidence of in-hospital mortality 90 days after the initiation of ECMO was 38.0% (95% CI 34.6–41.5).

In patients with COVID-19 who received ECMO, both estimated mortality 90 days after ECMO and mortality in those with a final disposition of death or discharge were less than 40%. These data from 213 hospitals worldwide provide a generalisable estimate of ECMO mortality in the setting of COVID-19."

24 September 2020

Clin Transl Sci: [Association Between Prescribed Ibuprofen and Severe COVID-19 Infection: A Nationwide Register-Based Cohort Study](#)

"Recommendations regarding ibuprofen use in relation to coronavirus disease 2019 (COVID-19) have been conflicting. We examined risk of severe COVID-19 between ibuprofen-prescribed and non-ibuprofen COVID-19 patients in a nationwide register-based study of COVID-19 patients in Denmark between end of February 2020 and May 16, 2020. Patients with heart failure (n=208), <30 years (n=575), and prescribed other non-steroidal anti-inflammatory drugs (n=57) were excluded. Patients with ibuprofen prescription claims between January 1, 2020, and before COVID-19 diagnosis or April 30, 2020 (last available prescription) were compared to patients without ibuprofen prescription claims. Outcome was a 30-day composite of severe COVID-19 diagnosis with acute respiratory syndrome, intensive care unit admission, or death. Absolute risks and average risk ratios comparing outcome for ibuprofen versus non-ibuprofen patients standardized to the age, sex, and comorbidity distribution of all patients were derived from multivariable Cox regression.

Among 4,002 patients, 264 (6.6%) had ibuprofen prescription claims before COVID-19. Age, sex and comorbidities were comparable between the two study groups. Standardized absolute risks of the composite outcome for ibuprofen-prescribed versus non-ibuprofen patients were 16.3% [95% CI 12.1-20.6] versus 17.0% [95% CI 16.0-18.1], P=0.74. The standardized average risk ratio for ibuprofen-prescribed versus non-ibuprofen patients was 0.96 [95% CI 0.72-1.23]. Standardized absolute risks of the composite outcome for patients with ibuprofen prescription claims >14 days before COVID-19 versus ≤14 days of COVID-19 were 17.1% [95% CI 12.3-22.0] versus 14.3% [95% CI 7.1-23.1]. In conclusion, in this

nationwide study, there was no significant association between ibuprofen prescription claims and severe COVID-19. "

Health Aff: [The Impact Of The COVID-19 Pandemic On Hospital Admissions In The United States](#)

"Hospital admissions in the US fell dramatically with the onset of the coronavirus disease 2019 (COVID-19) pandemic. However, little is known about differences in admissions patterns among patient groups or the extent of the rebound. In this study of approximately 1 million medical admissions from a large nationally representative hospitalist group, we found that declines in non-COVID-19 admissions from February to April 2020 were generally similar across patient demographic subgroups and exceeded 20% for all primary admission diagnoses. By late June/early July 2020, overall non-COVID-19 admissions had rebounded to 16% below pre-pandemic baseline volume (8% including COVID-19 admissions). Non-COVID-19 admissions were substantially lower for patients residing in majority-Hispanic neighborhoods (32% below baseline) and remained well below baseline for patients with pneumonia (–44%), COPD/asthma (–40%), sepsis (–25%), urinary tract infection (–24%) and acute ST-elevation myocardial infarction (STEMI), –22%). Health system leaders and public health authorities should focus on efforts to ensure that patients with acute medical illnesses can obtain hospital care as needed during the pandemic to avoid adverse outcomes."

Lancet Respir Med: [Risk of COVID-19-related death among patients with chronic obstructive pulmonary disease or asthma prescribed inhaled corticosteroids: an observational cohort study using the OpenSAFELY platform](#)

"Our study was specifically designed to assess the role of routine ICS use in COVID-19-related mortality. We included two cohorts of participants: people with asthma, and people with chronic obstructive pulmonary disease (COPD), both of whom have a possible indication for ICS. Neither analysis was strongly suggestive that regular ICS therapy for asthma or COPD has a clinically important causal effect on COVID-19 mortality in either direction. Our study includes data for almost 1 million patients, making it the largest contemporary study of ICS use in COVID-19 to date. We used active comparators and multiple sensitivity analyses to quantify the effect of possible unmeasured confounding. We used open methods throughout the study with code and codelists available for examination and reuse.

Evidence suggests there is neither a demonstrable benefit nor clear harm from ICS use against COVID-19-related mortality among people with COPD and asthma, and so no evidence supports that patients should alter their ICS therapies during the ongoing pandemic. Future observational research is likely to be subject to similar issues around unmeasured confounding, and evidence from ongoing randomised trials will provide answers regarding the role of ICS in the treatment of COVID-19 among people without asthma or COPD."

PLoS Pathog: [Comparative assessment of multiple COVID-19 serological technologies supports continued evaluation of point-of-care lateral flow assays in hospital and community healthcare settings](#)

Author summary: "PCR-based throat and nose swab tests for novel coronavirus (SARS-CoV-2) establish if someone is infected with the virus, while antibody tests can determine whether someone has had it in the past. However, for diagnosis later in disease, or in delayed-onset syndromes such as paediatric inflammatory multisystem syndrome (PIMS), antibody tests could form an important part of hospital diagnostic capabilities. They will also be essential for patient management strategies and community seroprevalence studies. We have conducted unbiased, head-to-head comparisons of ten commercial antibody test kits, using blood from patients admitted to hospital with COVID-19 throughout the peak of the epidemic in London, UK. As there was no existing approved diagnostic antibody test, we developed our own sensitive assay and used this to cross-compare the commercial tests. There was a broad range of performance among the tests, but all gave the best results when used 20 days or more after the start of symptoms. Furthermore, antibody levels were higher in individuals with severe illness compared to those with asymptomatic or mild disease. Some of the best-performing tests were rapid lateral flow immunoassays, which are affordable, quick and easy to use, and if they are deployed appropriately could have considerable utility in healthcare settings."

23 September 2020

Clin Infect Dis: [Asymptomatic reinfection in two healthcare workers from India with genetically distinct SARS-CoV-2](#)

Letter to the editor: " We describe two individuals, 25 year-old male (I1) and 28 year-old female (I2) healthcare workers posted in the COVID-19 unit of a tertiary hospital in North India, who tested positive for SARS-CoV-2 by reverse transcription-polymerase chain reaction (RT-PCR) on 5th May and 17th May, 2020 respectively. Though both individuals were asymptomatic, they were hospitalised as per institutional policy on 5th May and 18th May, respectively. Subsequently, they tested negative for SARS-CoV-2 by RT-PCR on 13th May and 27th May, respectively. After resuming duties in the hospital, the two individuals tested positive again for SARS-CoV-2 on 21st August and 5th September and further tested negative on the 14th and 6th days respectively. Both individuals were again asymptomatic but had a higher viral load on the second episode of reinfection (CT values of 36 and 16.6 for I1 and 28.16 and 16.92 for I2 for the first and second episodes, respectively)."

Vox Sang: [Severe acute respiratory syndrome coronavirus-2: implications for blood safety and sufficiency](#)

"Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is a novel coronavirus, first identified in China at the end of 2019 and has now caused a worldwide pandemic. In this review, we provide an overview of the implications of SARS-CoV-2 for blood safety and sufficiency.

We searched the PubMed database, the preprint sites bioRxiv and medRxiv, the websites of the World Health Organization, European Centre for Disease Prevention and Control, the US Communicable Diseases Center and monitored ProMed updates.

An estimated 15%–46% of SARS-CoV-2 infections are asymptomatic. The reported mean incubation period is 3 to 7 days with a range of 1–14 days. The blood phase of SARS-CoV-2 appears to be brief and low level, with RNAemia detectable in only a small proportion of patients, typically associated with more severe disease and not demonstrated to be infectious virus. An asymptomatic blood phase has not been demonstrated. Given these characteristics of SARS-CoV-2 infection and the absence of reported transfusion transmission (TT), the TT risk is currently theoretical. To mitigate any potential TT risk, but more importantly to prevent respiratory transmission in donor centres, blood centres can implement donor deferral policies based on travel, disease status or potential risk of exposure.

The TT risk of SARS-CoV-2 appears to be low. The biggest risk to blood services in the current COVID-19 pandemic is to maintain the sufficiency of the blood supply while minimizing respiratory transmission of SARS-CoV-19 to donors and staff while donating blood."

ICYMI

Allergy: [Thirty-six COVID-19 cases preventively vaccinated with mumps-measles-rubella vaccine: All mild course](#) (published online 07 September 2020)

Letter to the editor: "We would like to report here on our clinical observations in 255 subjects, vaccinated in our Center since the start of the Coronavirus disease-2019 (COVID-19) pandemic, with the mumps-measles-rubella (MMR) vaccine and of whom thirty-six have presented COVID-19, all with a remarkably mild course."

Nat Med: [Seasonal coronavirus protective immunity is short-lasting](#) (published online 14 September 2020)

"A key unsolved question in the current coronavirus disease 2019 (COVID-19) pandemic is the duration of acquired immunity. Insights from infections with the four seasonal human coronaviruses might reveal common characteristics applicable to all human coronaviruses.

We monitored healthy individuals for more than 35 years and determined that reinfection with the same seasonal coronavirus occurred frequently at 12 months after infection."

Selected Literature: Preprints

Preprints are found on preprint servers such as [arXiv](#), [bioRxiv](#), and [medRxiv](#); they are commonly used for biomedical research. Preprints may later be published in peer-reviewed journals.

Per medRxiv: "Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information."

medRxiv: [Projected HIV and Bacterial STI Incidence Following COVID-Related Sexual Distancing and Clinical Service Interruption](#) (posted 30 September 2020)

"The global COVID-19 pandemic has the potential to indirectly impact the transmission dynamics and prevention of HIV and other sexually transmitted infections (STI). Studies have already documented reductions in sexual activity ("sexual distancing") and interruptions in HIV/STI services, but it is unknown what combined impact these two forces will have on longer-term HIV/STI epidemic trajectories.

We adapted a network-based model of co-circulating HIV, gonorrhea, and chlamydia for a population of men who have sex with men (MSM) in the Atlanta area. Model scenarios varied the timing, overlap, and relative extent of COVID-related sexual distancing in casual and one-time partnership networks and service interruption within four service categories (HIV screening, HIV PrEP, HIV ART, and STI treatment).

A 50% relative decrease in sexual partnerships and interruption of all clinical services, both lasting 18 months, would generally offset each other for HIV (total 5-year population impact for Atlanta MSM: -227 cases), but have net protective effect for STIs (-23,800 cases). Greater relative reductions and longer durations of service interruption would increase HIV and STI incidence, while greater relative reductions and longer durations of sexual distancing would decrease incidence of both. If distancing lasted only 3 months but service interruption lasted 18 months, the total 5-year population impact would be an additional 890 HIV cases and 57,500 STI cases.

The counterbalancing impact of sexual distancing and clinical service interruption depends on the infection and the extent and durability of these COVID-related changes. If sexual behavior rebounds while service interruption persists, we project an excess of hundreds of HIV cases and thousands of STI cases just among Atlanta MSM over the next 5 years. Immediate action to limit the impact of service interruptions is needed to address the indirect effects of the global COVID pandemic on the HIV/STI epidemic."

Calls, Webinars, and Other Events

- WHAT:** [CDC COCA: Recommendations for Influenza Prevention and Treatment in Children: An Update for Pediatric Providers](#)
- WHEN:** Thursday, 08 October 2020, 1400–1500 ET
- DETAILS:** "Influenza remains a serious threat to children due to its potential to cause severe illness and death. Nearly 200 flu-associated deaths in children were reported to Centers for Disease Control and Prevention (CDC) during the 2019–2020 influenza season. Clinicians play a critical role in immunizing children, the children's family members and caregivers, and themselves. While early use of antiviral drugs in children can reduce the duration of symptoms and prevent serious complications, immunization remains the most effective way to prevent influenza and its complications, including death. Immunization is particularly important during the severe COVID-19 pandemic."
- CE available.
- LINK:** <https://www.zoomgov.com/j/1616039348>

News in Brief

The president and first lady have tested positive for COVID-19 ([@realDonaldTrump](#); [WaPo](#)).

Another report, another milestone: COVID-19 is responsible for more than 1 million deaths worldwide ([WaPo](#); [Nature](#)).

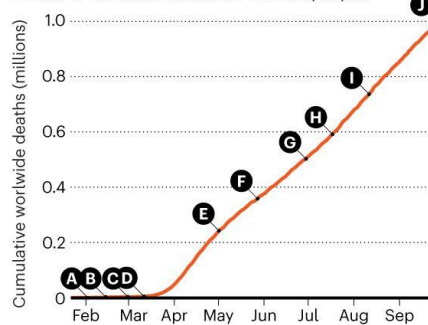
"Over the past 10 months, the virus has taken more lives than HIV, malaria, influenza and cholera. And as it sows destruction in daily life around the globe, it is still growing quickly." ([NYT](#)).

Data suggest that only about 100 children have died in the US and 18 states have seen no fatalities in patients younger than 20 years old as of early September ([WaPo](#)).

"As we reach grim milestones—200,000 dead in the U.S. and one million globally—our new challenge is overcoming the natural tendency to go numb." ([NatGeo](#))

COVID-19 DEATHS

Since the first recorded deaths in January, COVID-19 has killed more than 1 million people.



A	2 February	First death reported outside China (Philippines)
B	14 February	France reports first death in Europe
C	29 February	First US death announced
D	11 March	World Health Organization recognizes COVID-19 pandemic
E	1 May	First COVID-19 drug approved (remdesivir)
F	27 May	US death toll higher than that of any other country
G	29 June	Global death toll surpasses 500,000
H	17 July	India's death toll exceeds 25,000
I	11 August	Russia announces approval of coronavirus vaccine
J	28 Sept	Global death toll reaches 1 million

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Transmission and Exposure

The CDC pulled surveyors from Minnesota after they experienced verbal abuse, racism, and other forms of intimidation while going door-to-door as part of a larger coronavirus study ([NBC](#)).

Brigham and Women's Hospital in Boston is dealing with a COVID-19 cluster, including healthcare workers and two inpatient units ([BWH](#)).

It looks like mosquitoes *do not* spread SARS-CoV-2, so we've got that going for us, which is nice ([Medpage](#); see [preprint at bioRxiv](#)).

Long read: "Coronavirus is in the air. Here's how to get it out." ([Vox](#))

Testing and Treatments

The FDA has authorized the first point-of-care antibody test for COVID-19; the test allows for using fingerstick blood samples ([FDA](#)).

There is some suggestion that COVID-19 testing should include the cycle threshold value, but the usefulness of it is debated ([Science](#)).

Data from the first completed RCT of convalescent plasma – [the India-based PLACID trial](#) – suggest that there is no improvement in survival or disease severity ([medRxiv](#)). This article provides a nice table of selected studies, including the PLACID trial, of convalescent plasma in COVID-19 ([Nature](#)).

Early data suggest that Regeneron's combination monoclonal antibody treatment lowered viral levels and reduced symptoms faster than placebo in non-hospitalized COVID-19 patients ([Regeneron](#)).

"Alexa, do I have COVID-19?" ([Nature](#))

Vaccines

"SARS-CoV-2 vaccines in development" ([Nature](#); see also: Krammer's epic [138-tweet thread](#)).

"A layperson's guide to how – and when – a Covid-19 vaccine could be authorized" ([STAT](#)).

The FDA has put a partial clinical hold on Inovio's vaccine trial; according to the company the agency has questions about the vaccine delivery device ([Reuters](#)).

Moderna's vaccine won't be ready until 2021, according to reports ([Axios](#)).

We may be getting closer to a COVID vaccine, but the front runners have some big barriers to overcome – "chaos is looming" ([Atlantic](#)).

"New document reveals scope and structure of Operation Warp Speed and underscores vast military involvement" – where military personnel outnumber civilians by significant numbers ([STAT](#); see also [Science](#)).

Risk Factors and Ripple Effects

Data from an online survey of COVID-19 patients suggests as many of 90% of those who recover experience some type of side effect ([Reuters](#)).

"From leprosy to COVID-19, how stigma makes it harder to fight epidemics" ([Science](#); see also [video \[YouTube\]](#)).

A new database is tracking coronavirus data based on sex and gender ([SDDT](#)).

It looks like a major genetic risk factor for severe COVID-19 can be traced back to Neanderthals ([Nature](#)).

Long read: "This Overlooked Variable Is the Key to the Pandemic: It's not R" ([Atlantic](#)).

Thanks, Coronavirus

Parents are 'very not OK' during the pandemic ([NPR](#)).

With nearly two-thirds of households facing financial burdens, that is probably not surprising ([NPR](#)).

Another part of the crisis is the increase in food insecurity during the pandemic ([NPR](#); [NPR](#)).

"Denmark to cull up to one million mink due to risk of coronavirus contagion" ([Reuters](#)).

Science has spoken: cats shed (the SARS-CoV-2 virus) more than dogs ([PNAS](#)).

And Now for Something Completely Different

Editorial note: I often listen to music while I work on these reports. One of my go-to artists to listen to during the pandemic is Enya, and it turns out I'm not alone – many people find her music comforting. For that reason, I thought I would share these links.

Listen: [This is Enya – Spotify playlist](#) (49 songs, 2h 59 min)

Long read: "Enya is everywhere: How the unlikely star became a phenomenon hidden in pop-cultural plain sight, influencing a generation of groundbreaking artists." ([Pitchfork](#))

Long read: "The keys to Enya's kingdom: Over the course of three decades and with 80 million records sold, Enya has morphed into more than musician: She's her own adjective. What makes her music — and the mysterious woman behind it — appealing to so many?" ([BuzzFeed](#))

If Enya is not your thing, what about voting for fat bears? Personally, I'm pulling for [Holly, who was the 2019 champion](#). Such a chonky girl! ([Explore](#))

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